

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) An electronic drive unit assembly for a heavy-duty vehicle comprising:

a non-rotating spindle having an interior spindle chamber;

a wheel hub supported on at least one bearing for rotation relative to said spindle about an axis of rotation with said wheel hub defining an interior hub chamber;

an inner ring gear mounted to said spindle and an outer ring gear mounted to said wheel hub;

an electric motor mounted within said spindle chamber and having an output shaft operatively coupled to drive said wheel hub about said axis of rotation;

a spider directly supported on said output shaft of said motor for rotation about said axis of rotation, said spider including a plurality of bores; and

a plurality of planet gear sets spaced from said output shaft and mounted to said spider with each of said planet gear sets having a pinion shaft supported in a corresponding bore, an inner planet gear mounted to one end of said pinion shaft, and an outer planet gear mounted to an opposite end of said pinion shaft wherein said inner planet gears are in meshing engagement with said inner ring gear and said outer planet gears are in meshing engagement with said outer ring gear to define said operative coupling of said output shaft to said wheel hub.

2. (Previously Presented) An electronic drive unit assembly according to claim 1 wherein said inner ring gear, said outer ring gear, said spider, and said planet gear sets define a reduction gear assembly mounted within said wheel hub.

3. (Previously Presented) An electronic drive unit assembly according to claim 1 wherein said inner and outer planet gears rotate at a common speed about a corresponding pinion shaft.

4. (Previously Presented) An electronic drive unit assembly according to claim 3 wherein said inner planet gears have a first predetermined number of gear teeth and said outer planet gears have a second predetermined number of gear teeth that is different than said first predetermined number of gear teeth.

5. (Previously Presented) An electronic drive unit assembly according to claim 1 further including a sun gear mounted for rotation with said output shaft of said motor wherein said inner planet gears are in meshing engagement with said sun gear.

6. (Cancelled).

7. (Previously Presented) An electronic drive unit assembly according to claim 5 wherein said spider is rotatably supported on a bearing surface such that said sun gear and said spider can rotate at different speeds relative to each other.

8. (Cancelled).

9. (Previously Presented) An electronic drive unit assembly according to claim 5 wherein said inner ring gear, said sun gear, said spider, and said outer ring gear are concentric.

10. (Previously Presented) An electronic drive unit assembly according to claim 1 wherein said spider is in driving engagement with said output shaft of said motor such that each planet gear set rotates with said spider about said axis of rotation.

11. (Cancelled).

12. (Previously Presented) An electronic drive unit assembly according to claim 10 wherein said inner ring gear, said spider, and said outer ring gear are concentric.

13. (Currently Amended) An electronic drive unit assembly for a heavy-duty vehicle comprising:

a non-rotating spindle mounted to a vehicle structural component, said spindle defining an interior spindle chamber;

a wheel hub supported on at least one bearing for rotation relative to said spindle about an axis of rotation, said wheel hub defining an interior hub chamber;

a reduction gear assembly mounted within said hub chamber, said reduction gear assembly having an inner ring gear mounted to said spindle and operatively coupled to an input and an outer ring gear mounted to said wheel hub to define an output operatively coupled to said wheel hub;

said reduction gear assembly further including a plurality of inner gears in meshing engagement with said inner ring gear and a plurality of outer gears in meshing engagement with said outer ring gear with each one of said inner gears having a corresponding outer gear to form a plurality of gear pairs and wherein said inner and outer gears in each of said gear pair are rigidly mounted to a common shaft; and

an electric motor mounted within said interior spindle chamber and having a motor output shaft operatively coupled to said input to rotate said plurality of gear pairs to drive said wheel hub about said axis of rotation.

14. (Cancelled).

15. (Cancelled).

16. (Currently Amended) An electronic drive unit assembly according to claim [[15]] 13 wherein said inner gears have a first predetermined number of gear teeth and said outer gears have a second predetermined number of gear teeth that is different than said first predetermined number of gear teeth.

17. (Previously Presented) An electronic drive unit assembly according to claim 16 wherein said input comprises a sun gear mounted for rotation with said output shaft and in meshing engagement with said inner gears.

18. (Previously Presented) An electronic drive unit assembly according to claim 17 including a spider that supports said shafts from each of said gear pairs to rigidly connect said inner gears to said outer gears such that each gear pair rotates with said spider about said axis of rotation.

19. (Previously Presented) An electronic drive unit assembly according to claim 18 wherein said spider is rotatably supported on a bearing surface such that said sun gear and said spider can rotate at different speeds relative to each other.

20. (Currently Amended) An electronic drive unit assembly according to claim [[16]] 13 wherein said input comprises a spider in direct driving engagement with said output shaft, said spider supporting said common shafts such that each gear pair rotates with said spider about said axis of rotation.